Cell Stem Cell
Resource Review

Achieving Harmony in Worldwide Stem Cell Policy?

The Global Politics of Human Embryonic Stem Cell Science: Regenerative Medicine in Transition

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The most noticeable characteristic of politics regarding embryonic stem cell (ESC) science is the variety of policy approaches the subject has engendered. There are hardly two nations that have the same regulatory scheme for handling ESC research or clinical trials. Policies range from the complete prohibition of hESC research (i.e., Ireland, Austria, Lithuania, Poland, Slovakia) through regulations that allow only certain kinds of research (i.e., France, Canada, Germany) to regulations that permit the creation of embryos for research as well as for therapeutic cloning (Belgium, China, Singapore, and the United Kingdom). Even within the United States there is no consensus about what can and cannot be done, with various states permitting all manner of stem cell research, such as California, whereas others permit nothing having to do with embryos or cloning, such as Louisiana.

How did this ethical potpourri come to be? *The Global Politics of Human Embryonic Stem Cell Science* sets out to help the reader understand.

The authors of this very accurately researched book assert that hESC and cognate fields of regenerative medicine have become the objects of a kind of global drama. Although biotechnology is still mainly regulated by national governments, ''biopolitical forces and technological vectors that shape stem cell science exceed the boundaries of the nation state and involve regional, transnational and global alliances'' (p. 5). This said, the authors deal in eight readily accessible chapters with different aspects of the narratives that have driven the drama over the past decade.

The chapters address topics such as national interest in regenerative medicine, the growing human tissue market, the problem of global regulation, the role of the cloning of Dolly the sheep in shaping the regulation of ESC research in different countries, the role of bioethics in a global moral economy, and the question of patenting stem cells. Each of the chapters starts with an introduction and approaches the issue from different points of view—legal regulation, politics, bioethics, and sociology.

In the first chapter, ''Globalization, Stem Cell Markets and National Interests,'' the authors conclude that public investment in hESC research is very attractive for states because it not only expresses concern for the well-being of populations but also is seen as ensuring the global economic competitiveness of the nation as well. Indeed, much of the rush to corner the market on hESCs and cloning for research once the Bush administration put a lid on such activities in the United States was driven by the perceived economic opportunity presented with the United States essentially out of the game. However, it remains uncertain whether stem cell research will fulfill the economic promise that has brought it much attention, investment, and government support despite ethical concerns.

Chapter two focuses on hESC science and the global market in human tissues, especially in reproductive tourism—a disturbing phenomenon too often neglected by proponents of embryonic stem cell research. The import and export of hESC lines between nations such as Israel and Germany are discussed in order to show that there is a tension between proprietary innovation and public domain research on the one hand and a key dynamic between supply and demand for various biological materials within a global economy.

Chapters three, four, and five look at the regulation of the multiple societal, legal, and ethical challenges in stem cell science. While a single global regime of regulation might be desirable, the authors make clear that stem cell research, and if the research proves viable, therapies, must deal with local policy narratives that lead to inevitable regulatory differences among nations.

The authors start with the birth of Dolly as the key event in the local regulatory conflicts around hESC and cloning research. They ask whether there was any more or less coherent reaction to the new availability of cloning technologies by the governments of different countries. They argue that there have been two basic models to deal with the destabilization of biomedical and regenerative medicine discourse following Dolly: a coherent approach involving all the relevant actors in a broadly accepted, homogenous narrative and an encompassing system of regulation (such as in the United Kingdom and in Japan) and a heterogeneous regulatory approach emerging within a highly antagonistic political framework (United States, Germany, Italy) or a system of repressing the political debate (South Korea). The comparison

shows that neither arguments of path dependency (p. 83) nor the autonomous operation of any cultural patterns can exclusively explain the regulatory variations. Whereas historical memories of earlier abuses of science and previous regulatory history played key roles in the United Kingdom or in Germany, there is no question that religion was a major factor for the regulatory pathways chosen in Italy, the United States, and Japan.

Many bioethical institutions were created around the world to cope with stem cell science and cloning research. Consequently, in chapters five and six the focus is on bioethics as a ''new language and practice'' for dealing with regulatory challenges. This regulation is characterized by radical moral uncertainty and a lack of consensus; the boundaries between ''cells,'' ''the embryos,'' and ''human beings'' and the moral status assigned to each, such as rights, dignity, and personhood, have been in a constant state of flux in many countries struggling to shape stem cell science.

In chapter six, bioethics and its role in the political process are the focus. Bioethics is seen as a political community, a transnational network, and a bureaucratic device that has become the political means for the creation of a global moral economy. Within this economy the trading and exchange of values is normalized and legitimated. Bioethics is, the authors tell us, the ''neutral currency with which cultural values can be measured, positions priced and deals arranged'' (p. 128). The utility of bioethics is its ability to generate ethical solutions that can be translated into widely accepted regulatory policy. Cultural values can be contested, but this contest is routinized and assumed to be productive through the exchange of values under the banner of bioethics.

While to some degree this interpretation seems true, in that bioethics speaks neither in explicitly religious terms nor from a particular normative outlook, it is perhaps not quite as adept at bridging the cultural and religious divides concerning embryos and research upon them that exist in many nations. The book does not give enough credit to the role played by attempts to offer ''alternatives'' to the destruction of embryos through various strategies such as plans to use induced pluripotent cells to generate a range of adult cell types to treat illnesses and injuries. Nor do the authors pinpoint the ethical solution that really did draw some consensus permitting changes in policy in the United States and other nations—confining the generation of new stem cell lines to the use of embryos slated for destruction at infertility clinics. The former was a compromise driven by science. The latter was prompted more by bioethical argumentation. Both developments are important in understanding the evolution of the political debate over stem cells.

Chapter seven focuses on the cultural politics of money spent on hESC research by the European Union (EU)'s framework programs. Of particular interest is the bureaucratization of bioethics and its incorporation as an integral part of decision-making on project applications for funding within the EU's framework programs. In this setting bioethics truly did become king. The authors argue that institutionalized modes of ethics engagement will become a political technology used for stem cells and other technologies in the future in the EU. The institutionalization of bioethics in the EU, a phenomena not yet seen in the United States, China, or India, constitutes a permanent feature of the new cultural politics of Europe in which bioethics is used to refine, resolve, and legitimate cultural differences through the trading of values in an authoritative language and with the clout to impose answers.

The book ends with a look at the prospects for standardization of regulations. Regenerative medicine seems to be one of the first areas of biomedical innovation driven by truly global, socio-economic, political, and scientific-technological factors. Regenerative medicine plays in the transnational arena beyond confines of any particular province, canton, state, or nation state. Those scientists who do not like the rules of one province, canton, state, or nation can head to another. Those nations who seek to enter into what is seen as a potential economic driver for their GNP can and do make themselves more hospitable to stem cell science. But so do the kooks and crackpots who fleece the desperately ill with promises all over the Internet of stem cell ''cures'' for all manner of diseases. It is not clear how this rapidly evolving and often inconsistent set of policies can be reconciled, much less standardized. And maybe it ought not to be—the authors themselves don't really take a side. However, it would seem that the price of letting a hundred regulatory flowers bloom around the world may be too high to bear in terms of poor oversight, risk of patient abuse, and a lack of protection of basic human rights. As stem cell research moves out of its infancy, perhaps it is time to revisit the regulatory potpourri that allowed it to be born?

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